



New Meeting Hall/ Performing Arts Center and New Campus Green

TECHNICAL MEMORANDUM

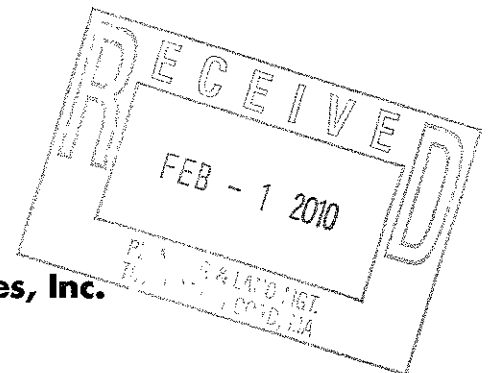
STUDENT DROP-OFF/PICK-UP

Prepared for

**The Fenn School
Concord, Massachusetts**

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Introduction

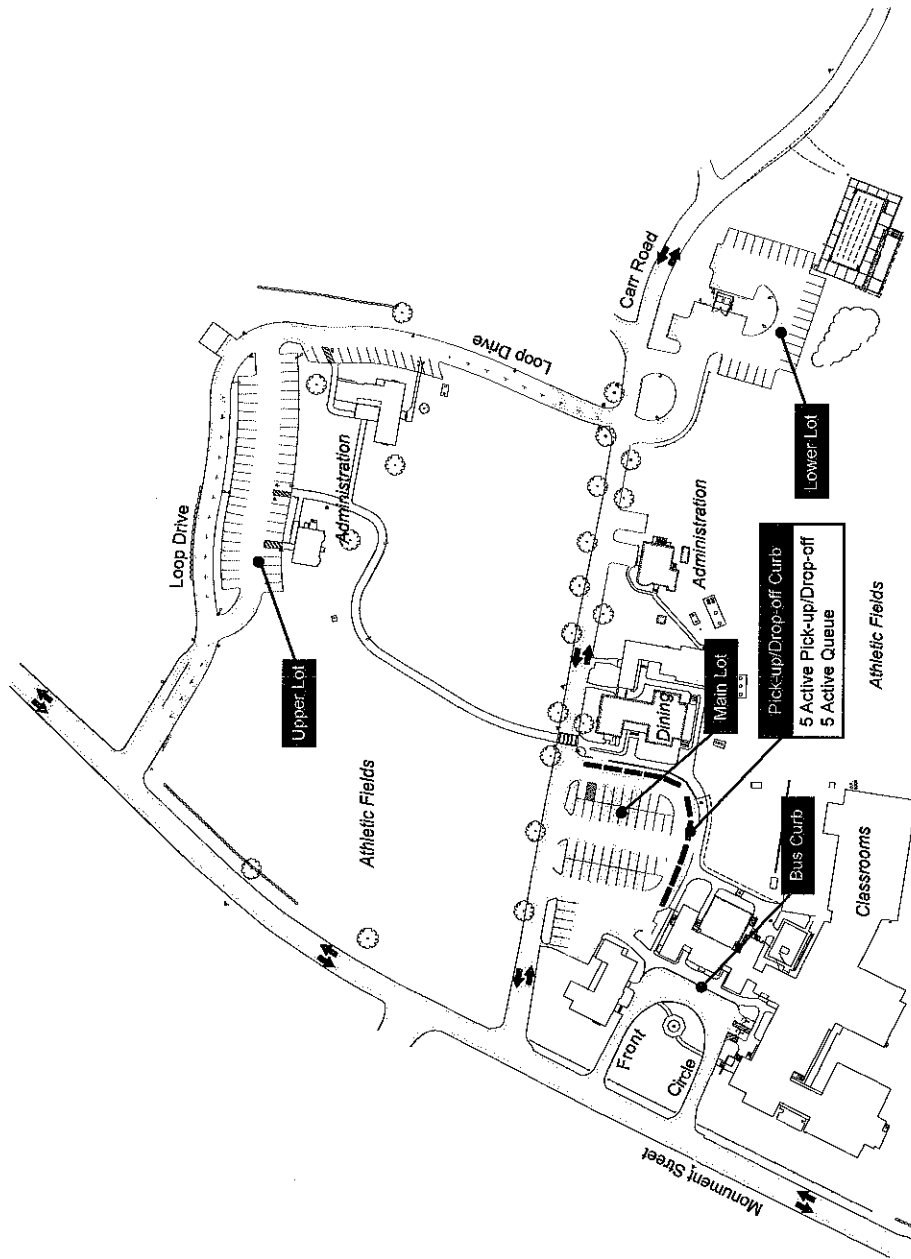
As with many schools, student drop-off and pick-up activities at The Fenn School have caused short periods of heavy traffic demand. Over the past several years, The Fenn School has taken aggressive steps to manage student drop-off/pick-up activities, including construction of a Loop Drive along the north perimeter of the campus, depicted in **Figure 1**. The Loop Drive has been extremely successful in containing all of The Fenn School's drop-off/pick-up queues to campus roads. Prior to the construction of the Loop Drive, congestion occurred along both Monument Street and Carr Road during both drop-off and pick-up periods.

Recently, the Town of Concord requested that The Fenn School also restrict vehicle queuing along Carr Road—particularly during pick-up activities, when use of Carr Road for queuing was most prevalent. Active management of the queue by Fenn staff at the intersection of the Loop Drive at Carr Road has been successful in honoring this request by the Town.

The purpose of this technical memorandum is to document the student drop-off and pick-up queue management efforts currently in practice at The Fenn School and to identify appropriate future queue management methods once the proposed new Meeting Hall/Performing Arts Center is constructed and occupied. The Meeting Hall/Performing Arts Center project also includes renovations to the library and classrooms. As shown in **Figure 2**, the proposed project involves construction of a new Meeting Hall/Performing Arts Center, along with associated landscape and streetscape improvements, to create a new Campus Green with an improved pick-up/drop-off area and short-term parking. The Fenn School intends to maintain a school population of approximately 300 students.

THE FENN SCHOOL
Concord, Massachusetts

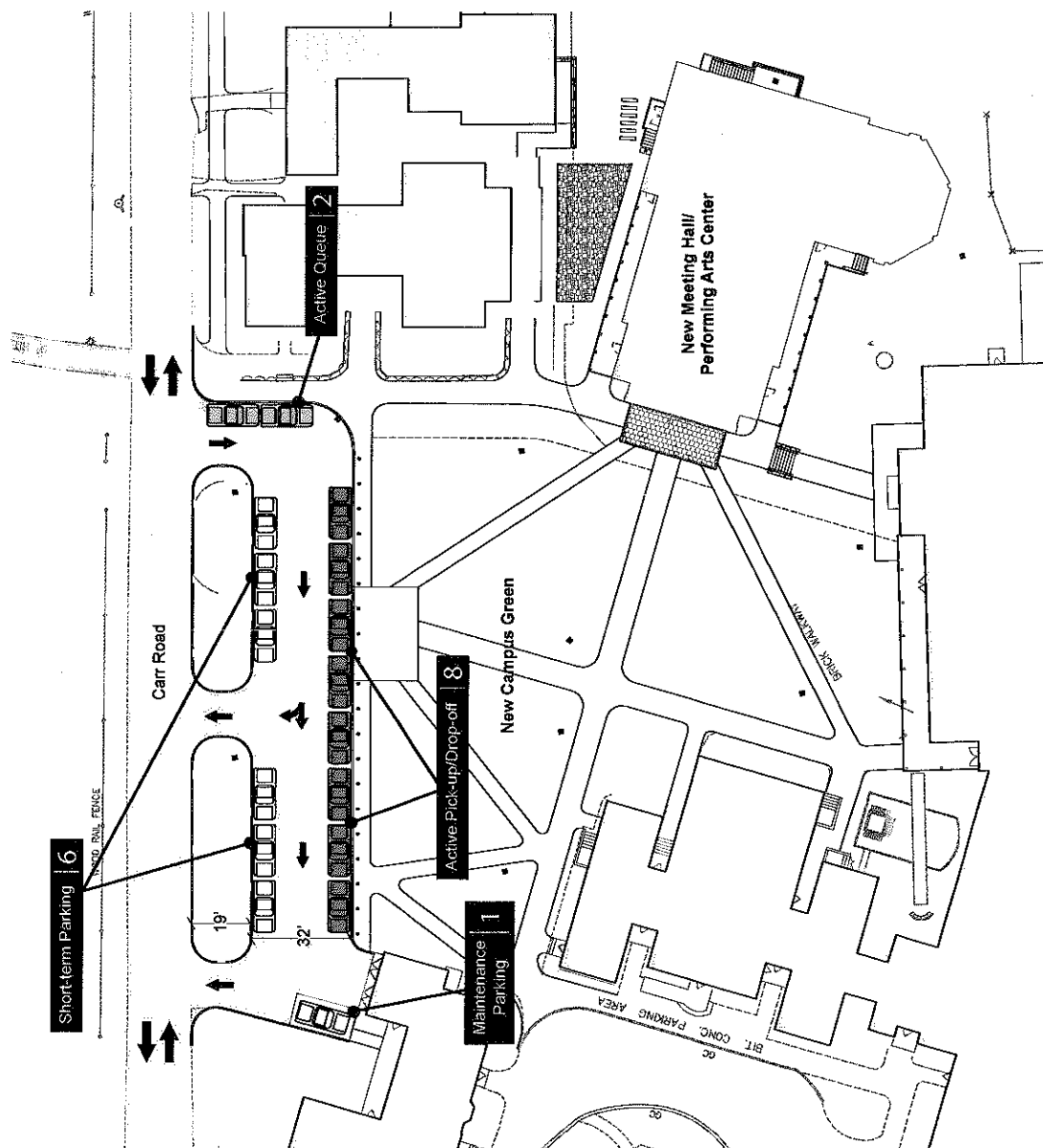
FIGURE 1.
THE FENN SCHOOL
EXISTING CAMPUS
PLAN



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**FIGURE 2.
THE FENN SCHOOL
NEW MEETING HALL/
PERFORMING ARTS CENTER
AND CAMPUS GREEN**



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Student Pick-up/Drop-off Vehicle Management

Current Practice

Most student drop-off and pick-up by parents currently occurs in the Main Lot between the dining hall and the academic buildings. Parents and staff are directed to always enter The Fenn School Campus via the Loop Drive; signage located at Carr Road directs all vehicles entering The Fenn School to the Loop Drive. Queuing is a concern—especially during pick-up times—and is more pronounced on days when concurrent dismissal occurs at the school. In addition, during the summer, “Summer Fenn” drop-off/pick-up activity can be more active than that of the regular school session. Active management by school staff is employed to contain all queuing activity on the school campus and off adjacent roadways. All Town school bus drop-off and pick-up activity occurs in the Front Circle along Monument Street and in front, or to the west, of the academic buildings.

Drop-off Activity

During the morning drop-off period, parents drop off students in the Main Lot near the academic buildings. Parents are directed to enter the campus from Monument Street via the Loop Drive for all drop-off activities, including driving to the Main Lot. Morning drop-off activity generally does not cause queuing outside of the Main Lot, since vehicles can arrive, drop off students quickly, and leave the campus. Drop-off activities require management by about 4 Fenn staff.

Pick-up Activity

Parents are directed to enter the campus from the Loop Drive for all student pick-up. The first few arrivals are allowed to proceed around the Loop Drive, turn right on Carr Road, and form a queue along the curb edge in the Main Lot. This lot has space to queue approximately 10 vehicles—although only the 5 that are parallel to the classroom building are observed to be actively picking up students at any given time under this arrangement. The remaining 5 vehicles are in an active queue along the curb parallel to the dining hall. Pick-up queuing does not impact general parking maneuvers in the Main Lot.

As the queue lengthens in the Main Lot, Fenn staff members are employed at the Loop Road to hold subsequent vehicles along the left side of the Loop Drive in a single-lane queue starting at Carr Road

and extending back toward the Upper Lot. Between 4 and 5 Fenn staff currently manage regular schedule pick-up activities. The capacity of this queue is about 15 vehicles. Since no cars queue on Carr Road, this arrangement allows for a clear path of travel for 2-way traffic along Carr Road and also provides a clear travel lane for any vehicle that may want to exit the Upper Lot without waiting in the queue. No stopping or waiting is allowed along Carr Road. The right side of the Loop Drive is kept clear for vehicles leaving the Upper Lot to exit the campus during the pick-up period. Temporary stanchions are used along the Loop Drive between the Upper Lot and Carr Road to keep the queuing lane separate from the exit lane.

Additional vehicle stacking is managed along the Loop Drive north of the Upper Lot and along the left side of the driving aisle within the Upper Lot itself. Combined, additional vehicle stacking in these areas is about 28 vehicles. A portable sign at the exit from the Upper Lot directs traffic and organizes these queues.

An additional 8 vehicles can be accommodated from the intersection of the Loop Drive and the Upper Lot west to Monument Street. Under this arrangement, total on-campus vehicle queuing capacity is approximately 61 vehicles: 10 vehicles in the Main Lot and 49 additional vehicles on the Loop Drive and within the driving lane of the Upper Lot.

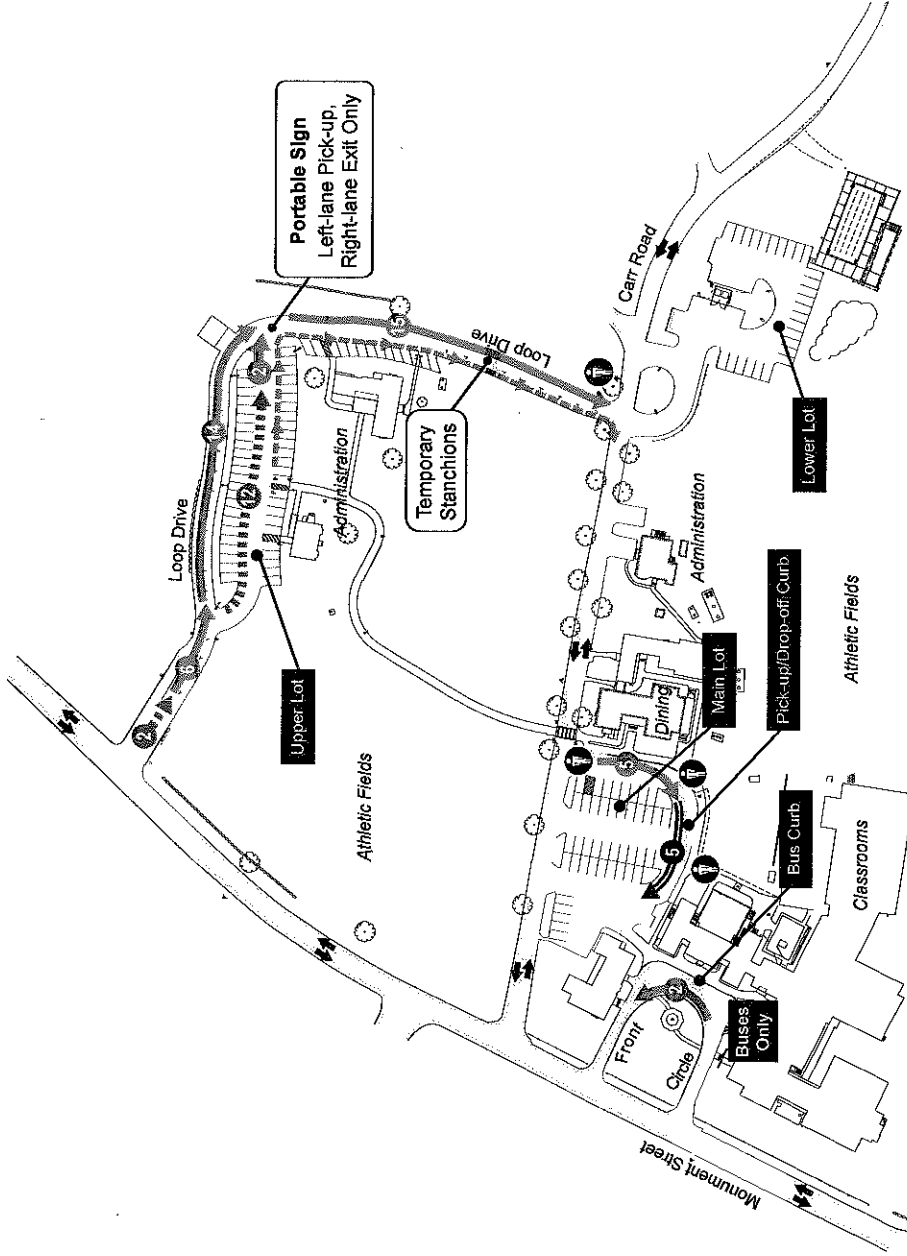
To assess the current operations, HSH observed student pick-up activity at The Fenn School on December 17, 2009, a day when there were concurrent class dismissals. After-school activities were not held that day, resulting in a more concentrated pick-up demand than on a typical school day. The average queue of about 34 vehicles extended about half-way along the portion of the Loop Drive adjacent to the Upper Lot, with only a couple of vehicles using the left side driving aisle of the Upper Lot. The *maximum* queue observed utilized a substantial portion of the Loop Drive, with a similar number of vehicles as evidenced in the average queue using the Upper Lot. At its peak, approximately 47 vehicles were in queue, including 10 in the Main Lot, 2 in the Upper Lot, and the remaining along the Loop Drive. This maximum queue dissipated within 5 to 10 minutes.

Total campus vehicle queuing capacity and observed vehicle queuing during the afternoon pick-up period is presented in **Figure 3**. Overall, vehicle queuing associated with student pick-up activities was observed to be accommodated within existing capacity, with additional storage available in the Upper Lot and along the Loop Drive. To improve these operations, The Fenn School is adding signage at the point where the Upper Lot splits from the Loop Drive, making the double queue line more apparent to arriving vehicles.

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**FIGURE 3.
OBSERVED VEHICLE QUEUE
DURING HEAVY DISMISSAL
PICK-UP**

- # Number of Vehicles
- Observed Queue
- Additional Queuing Capacity
- Direct Exit Lane from New Lot
- Active Pick-up/Drop-off
- Staff Member



Not to Scale

Summer Fenn

Management of pick-up activity at Summer Fenn currently uses a dual lane method separated by movable traffic cones and stanchions within the Main Lot. This arrangement reduces the parking capacity of this lot by approximately 6 spaces but increases queuing capacity to 18 vehicles. Summer Fenn also provides more staff than the typical school day to control and organize drop-off and pick-up activities, allowing about 8 vehicles to be loaded at a time. This is almost double the active loading that occurs during the typical school pick-up. Summer Fenn escorts every camper to his or her parent, while the regular school only regulates the number of vehicles allowed to load at any one time. Afternoon pick-up is the most labor-intensive, with regular school providing around 4 to 5 staff persons and Summer Fenn around 8+ staff persons.

Existing Conditions Summary

The Fenn School Loop Road improvement completed several years ago has successfully addressed student drop-off/pick-up queuing concerns. The current drop-off and pick-up activity—with these Loop Road improvements and associated Fenn staffing—works well for the School and has eliminated queuing on Monument Street and on Carr Road.

Meeting Hall/Performing Arts Center and New Campus Green

As previously shown in **Figure 2**, The Fenn School will construct a new Meeting Hall/Performing Arts Center, along with associated landscape and streetscape improvements. A new Campus Green will be developed in a portion of the footprint of the Main Lot in front of the current classroom building and to the west of the dining hall and the new Meeting Hall/Performing Arts Center. The new Campus Green will include limited short-term parking and an improved and lengthened student drop-off/pick-up area.

Drop-off/Pick-up Area Geometrics

The proposed drop-off/pick-up and short-term parking area will be located along the north portion of the former Main Lot and parallel to Carr Road. Short-term parking will be provided along the north side, with all drop-off/pick-up activity occurring along the south side adjacent to the Campus Green. Parking for a single maintenance vehicle will be provided at the western end of the drop-off/pick-up area near the maintenance garage.

Operations will be 1-way westbound, as they currently are, in a 32-foot-wide roadway cross-section. An approximate 14- to 16-foot-wide single travel lane will be provided between short-term parking spaces and active drop-off/pick-up spaces. A 19-foot landscaped buffer will be provided between the

short-term parking area and Carr Road. To facilitate drop-off/pick-up departures, a driveway exit will be provided through the landscape buffer at about mid-way along its length.

Eight (8) active drop-off/pick-up spots will be provided in the new configuration—approximately 3 more spaces than are currently active for loading, almost doubling the active drop-off and pick-up area. Short-term parking for 6 vehicles is provided for parents whose children are late for pick-up.

Drop-off/Pick-up Management

With the new Campus Green configuration, HSH recommends that The Fenn School continue to direct parents to always approach and enter the new drop-off/pick-up area via Monument Street to the Loop Drive and Carr Road westbound. In terms of drop-off activity, which requires very little management by Fenn staff, this management approach will continue to minimize vehicle turning movement conflicts into and out of the drop-off area and not require additional staffing.

The Fenn School's effective pick-up management efforts should continue. Expected vehicle queuing during the afternoon dismissal pick-up with the new Campus Green is shown in **Figure 4**. The improved drop-off/pick-up area will provide 8 active pick-up loading spaces and 2 live queuing spaces. This improved arrangement will provide for 3 additional active loading spaces to those currently managed in the existing Main Lot—and the same number of overall vehicles in either active pick-up or live queue mode. Additionally, there will be 6 short-term parking spaces where parents can wait if their child is late—thereby not slowing down pick-up activities. The addition of 3 active pick-up spaces and easily accessed short-term parking spaces will expedite overall pick-up activities and is expected to shorten overall observed queue lengths and wait times.

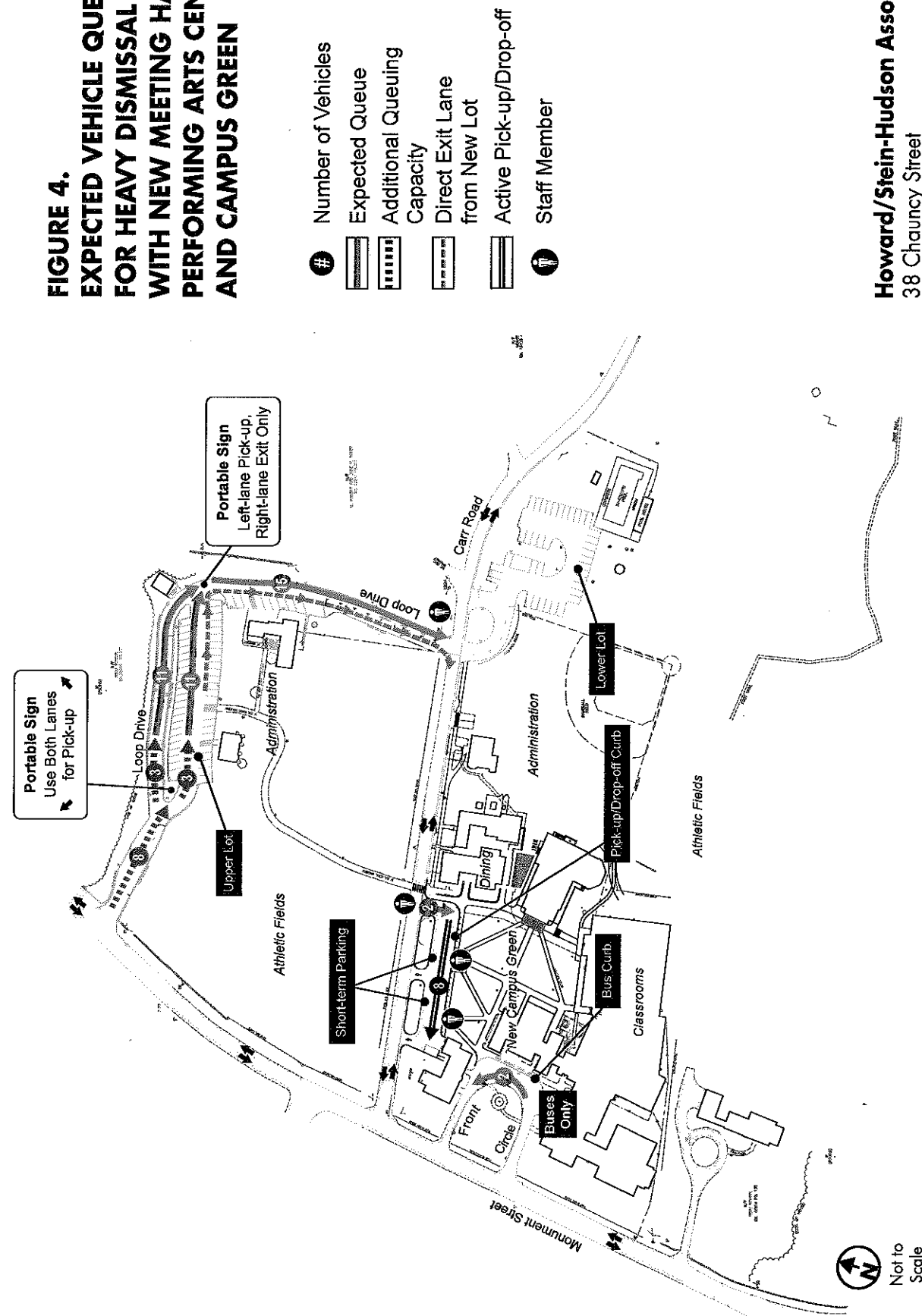
Summer Fenn

Management of pick-up activity for Summer Fenn with the new Campus Green is expected to be similar to that of regular daily school. Active loading along the pick-up curb has been increased from the current 5 vehicles to 8 vehicles. Summer Fenn's current management with the dual lane approach provides for 8 loading stations equivalent to the new drop-off/pick-up area. It is expected that Summer Fenn will continue to require more staff to manage and facilitate drop-off and pick-up activities. The new Campus Green configuration is also able to support Summer Fenn's needs in this regard.

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FIGURE 4.
EXPECTED VEHICLE QUEUING
FOR HEAVY DISMISSAL PICK-UP
WITH NEW MEETING HALL/
PERFORMING ARTS CENTER
AND CAMPUS GREEN



Additional Queuing Capacity

Based on observations of current conditions, additional queuing capacity is not required, since the current queue storage and queue management efforts have proven sufficient. Should additional queuing over current capacity be needed for some reason, however, the Loop Drive just north of the Upper Lot could be used as a 2-lane pick-up queue. This would require parking restrictions between 3:30 and 5:00 p.m. for the 10 parking spaces along this portion of the Loop Drive. Under this configuration, vehicles would queue in 2 lanes along this stretch in addition to the single queue within the Upper Lot. All 3 queues would take turns merging where the Upper Lot exits onto the Loop Drive as it turns towards Carr Road. This would probably require a staff member to coordinate vehicles at the merge point. An estimated additional 14 vehicles could be accommodated under this arrangement.

Proposed Conditions Summary

The proposed improvements as part of the Campus Green will further assist The Fenn School in the safe and expeditious management of student drop-off and pick-up activities. The additional active drop-off/pick-up spaces combined with easily accessible short-term parking spaces will expedite pick-up activities, thereby shortening overall wait times and queue lengths. Additional signage at the Upper Lot will assist in queue management.